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April 2, 2004

CERTIFICATE OF MAILING
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Robert E. Hanson

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Re: *SN 09/771,938 "PLANTS AND SEEDS OF CORN VARIETY I015036"*
by Thomas B. Carlson
Our Ref. DEKA:281US; Client Ref. 34-63 (52326)

Commissioner:

Enclosed for filing in the above-referenced patent application is:

1. A Brief on Appeal (original and 2 copies);

2. A check in the amount of $330.00 in payment of the required filing fee; and

3. A return postcard to acknowledge receipt of these materials. Please date stamp and mail this postcard.

If the check is inadvertently omitted, or the amount is insufficient, or should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed materials, or should an overpayment be included herein, the Commissioner is authorized to deduct or credit said fees from or to Fulbright & Jaworski L.L.P. Account No.: 50-1212/DEKA:281US.

Respectfully submitted,

Robert E. Hanson
Reg. No. 42,628

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Enclosures: As stated

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Thomas B. Carlson

Serial No.: 09/771,938

Filed: January 29, 2001

For: PLANTS AND SEEDS OF CORN VARIETY I015036

Group Art Unit: 1638

Examiner: Mehta, Ashwin D.

Atty. Dkt. No.: DEKA:281US

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April 2, 2004
Date

Robert E. Hanson

BRIEF ON APPEAL

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants hereby submit an original and two copies of this Appeal Brief. The fee for filing this Appeal Brief is attached hereto. This Brief is filed pursuant to the Notice of Appeal mailed January 28, 2004. The date for filing the instant Brief is April 2, 2004, based on the receipt of the Notice of Appeal by the Patent and Trademark Office on February 2, 2004.

No additional fees are believed due in connection with the instant paper. However, should any fees be due, the Commissioner is authorized to withdraw the appropriate fee from Fulbright & Jaworski L.L.P. Deposit Account No. 50-1212/DEKA:281US. Please date stamp and return the enclosed postcard to evidence receipt of this document.

I. REAL PARTIES IN INTEREST

The real party in interest is Monsanto Company, the parent of wholly-owned subsidiary DeKalb Genetics Corporation, the assignee of this application.

II. RELATED APPEALS AND INTERFERENCES

Appeals were filed in U.S. Patent Application Ser. No. 09/606,808; U.S. Patent Application Ser. No. 09/772,520; U.S. Patent Application Ser. No. 09/788,334; U.S. Patent Application Ser. No. 10/077,589; and U.S. Patent Application Ser. No. 10/077,591. The cases are not related to the current case but share the same Real Parties in Interest, are also directed to inbred corn plants, and present many of the same issues on appeal as this case and therefore may have a bearing on the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS

Claims 1-31 were filed with the application. Claims 4 and 26 were canceled in a Response to the Second Office mailed April 15, 2003. Claims 1-3, 5-25 and 27-31 were therefore pending at the time of the Third Office Action. The Third Office Action appears to have inadvertently listed claim 26 as still pending in the case.

Claims 1, 5, 7-10, 12, 13 and 21 were indicated as allowed in the Third Office Action and claims 2, 3, 6, 11, 14-20 and 22-31 were rejected. No amendments have been made subsequent to the Third Office Action. Therefore, claims 1-3, 5-25 and 27-31 are currently pending in the case. The rejections of pending claims 2, 3, 6, 11, 14-20, 22-25 and 27-31 are the subject of this appeal. A copy of the appealed claims is attached as **Appendix 1** and a copy of the pending claims is attached as **Appendix 2**.

IV. STATUS OF AMENDMENTS

No amendments were made subsequent to the Third Office Action.

V. SUMMARY OF THE INVENTION

The invention relates to the novel inbred corn plant designated I015036 and seeds or populations of seed thereof. Specification at page 5, lines 5-22. The invention also relates to single locus converted plants of I015036. Specification at page 6, lines 12-21. The invention further relates to methods for breeding I015036 with other corn plants, and hybrid plants produced thereby. Specification from page 7, line 23 to page 9, line 16.

VI. ISSUES ON APPEAL

(1) Are claims 2, 3, 6, 11, 14-18, 20, 22, and 27-30 properly rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out the subject matter which applicants regard as the invention?

(2) Are claims 2, 3, 6, 11, 14, 24, 25 and 27-31 properly rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to convey that the applicants were in possession of the claimed invention?

(3) Are claims 27-30 properly rejected under 35 U.S.C. §112, first paragraph, as lacking enablement?

VII. GROUPING OF THE CLAIMS

Claim 3 is directed to an essentially homogeneous population of seed of corn variety I015036, while claim 14 is directed to an essentially homogeneous population of corn plants produced by growing the seed of corn variety I015036. The analysis of issues on appeal for these claims turns on the meaning of "essentially homogeneous," and thus the claims stand or fall together but separately from the remaining claims, which are directed to distinct subject matter with different issues on appeal. Claim 2 is also directed to a population of seed and thus

stands or falls with claims 3 and 14. Claims 6 and 11 are directed to plants or plant parts having a specified marker profile. The appeal of the rejection of these claims turns on whether the marker profiles are described and enabled. None of the other claims present this issue and thus claims 6 and 11 stand or fall together but separately from the other claims. The appeal of the rejection of claims 15, 17 and 20 turns on the definiteness of the term "capable of expressing" and thus these claims present distinct issues on appeal. Claims 15, 17 and 20 therefore stand or fall together bus separately from the remaining claims. Claims 16-19 are directed to a corn plant capable of expressing all the physiological and morphological characteristics of the corn variety I450436 that further comprises a nuclear or cytoplasmic gene conferring male sterility. None of the other claims are directed to this subject matter and thus distinct issues are raised under 35 U.S.C. §112, first paragraph. Claims 16-19 therefore stand or fall together but separately from the remaining claims. Independent claims 22-23 are directed to a process of producing corn seed comprising crossing first and second corn plants, whereas claims 24-25 and 27-30 are directed to hybrid plants or seed produced by certain embodiments of this process. Process and product claims present different issues for the analysis of written description under 35 U.S.C. §112. Claims 22-23 thus stand or fall together but separately from the remaining claims. Claims 24-25 and 27-30 also stand or fall together but separately from the remaining claims. Another appealed independent process claim is present in the case in addition to claims 22-23, claim 31, but claim 31 comprises a distinct series of steps from these claims and thus presents different written description issues on appeal. Claim 31 therefore stands or falls alone.

VIII. SUMMARY OF THE ARGUMENT

The indefiniteness rejections fail because the metes and bounds of the claims are fully definite. The Examiner has failed to apply the proper standard under the second paragraph of

§112. The indefiniteness rejections are each improper because the allegedly indefinite terms have a well known meaning such that one of skill in the art would understand the full metes and bounds of the claims.

The written description rejections fail because the claimed subject matter has been adequately described. Each of the claimed hybrid plants and seeds having inbred corn plant I015036 as one parent have as half of their genome the same genetic contribution from I015036, given that corn plant I015036 is inbred. This structural characteristic is readily detectable and thus defines the claimed plants. These plants can be produced using any second plant, thus written description with regard to the second parent is satisfied based on the countless corn varieties known to those of skill in the art. Methods of crossing the claimed corn variety have been fully described in the recited steps, and such corn breeding steps were well known in the art. Single locus conversions of I015036 were also fully described, in that well more than a representative collection of single locus conversion traits are described in the specification and were well known to those of skill in the art. The single locus conversion traits themselves are further not being claimed, rather it is corn plant I015036 comprising any given single locus conversion that is claimed.

The enablement rejections fail because Appellants working examples and descriptions in the specification fully enable the claimed subject matter. The Examiner has improperly disregarded this evidence and failed to support the rejections in contradiction of the standards of the APA.

IX. ARGUMENT

The Examiner has rejected claims 2, 3, 6, 11, 14-18, 20, 22, and 27-30 under 35 U.S.C. §112, second paragraph, as being indefinite; claims 2, 3, 6, 11, 14, 24, 25 and 27-31 under 35

U.S.C. §112, first paragraph, as allegedly lacking an adequate written description in the specification; and claims 27-30 under 35 U.S.C. §112, first paragraph, as lacking enablement. Appellants respectfully request that the Board reverse the rejections for the reasons set forth below.

A. The Rejections Under 35 U.S.C. §112, Second Paragraph, Were Improperly Maintained

1. Rejection of claims 2, 3 and 14

The Examiner rejected claims 2 and 3 because it is stated that the meaning of "population" and "essentially homogeneous" is unclear with respect to whether the populations include seed of other types. The same argument is made with respect to claim 14. The Examiner notes in particular that the positions taken are allegedly inconsistent with the specification.

Appellants first note in response that the position taken by the Examiner is without legal support. Any alleged agreement, or lack thereof, between the claims and the specification is properly considered only with respect to 35 U.S.C. 112, first paragraph; it is irrelevant to compliance with 35 U.S.C. 112, second paragraph. *In re Ehrreich*, 590 F.2d 902, 200 USPQ 504 (CCPA 1979). Appellants further note that the meanings of both claims are clear on their face. Claim 2 reads as follows:

> 2. A population of seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

Claim 3 specifies the population of seed of claim 2, "further defined as an essentially homogeneous population of seed." Claim 3 thus further defines the population of claim 2 as being "essentially homogeneous." While claim 2 is directed to a population of seed of the corn variety I015036, it is not necessary that the population be an essentially homogeneous population of seed. Appellants submit that the meaning of the claims is clear.

First, the claims are directed to seed populations "***of the corn variety I015036***" or plants grown therefrom. The claims are not directed to populations of other seed. Thus the possibility of some other seed being in the population is moot with respect to the claim scope. A population of seed of the corn variety I015036 is nothing more and nothing less. Any other seed envisioned by the Examiner is not within the scope of the claim as written. Otherwise, the claim would have to be directed to a population of seed comprising seed of the corn variety I015036 or of the corn variety I015036 and any other seed.

Further, the claim terms used are well known to those of skill in the art. A population may be not essentially homogeneous yet still be a population. For example, the relevant definition of "population" from the on-line version of the Merriam-Webster™ dictionary is "a body of persons or individuals having a quality or characteristic in common." **Exhibit A**. In contrast, the definition for "homogeneous" from the same on-line dictionary is given as "of uniform structure or composition throughout." **Exhibit B**. Therefore a collection of seed may at one time have a quality or characteristic in common, *e.g.*, be of variety I015036, yet not be of uniform structure or composition throughout. For example, a population of seed of corn variety I015036 could be non-uniform in size or shape, due to growth or other conditions, yet still have the common quality of being a corn plant of variety I015036. As such, claim 3 is in proper dependent form and claims 2, 3 and 14 are fully definite. Reversal of the rejection is thus respectfully requested.

2. Rejection of claims 16 and 27

The Examiner rejects claims 16 and 27 as broadening the scope of the claims from which they depend. Claim 16 depends from claim 15 and therefore incorporates all of the limitations of claim 15, but further specifies the added characteristic of male sterility. In particular, the claim

is directed to the corn plant of claim 15 "further comprising a nuclear or cytoplasmically-inherited gene conferring male sterility." This is an added limitation not required by claim 15. Similarly, claim 27 is directed to the corn plant of claim 5 "further defined as having a genome comprising a single locus conversion." Again, the claim specifies an additional characteristic relative to the main claim while including all of the limitations. The characteristics are added above and beyond the subject matter of the independent claims, that is, the single locus conversion is ***added*** to the parent plant. The fact that the single locus conversion changes the fertility of the plant into which it is added does not make the claim indefinite because there is no prohibition against adding elements that may somehow affect what was already specified in the independent claim. Both claims (1) contain a reference to the parent claim from which they depend, (2) add a further limitation of the main claim, and (3) incorporate all elements of the claim from which they depend. The claims are therefore in proper dependent form pursuant to 37 C.F.R. §1.75(c) and are fully definite. Reversal of the rejection is therefore respectfully requested.

3. Rejection of claims 6 and 11

The Examiner states that "in accordance with" renders the claim indefinite because the meaning of the term is not exactly clear. In response, Appellants note that the term has a well known meaning in the art. As evidence of the meaning, Appellants have attached hereto the dictionary definition for "accordance" from the on-line version of the Merriam-Webster™ dictionary. (**Exhibit C**). As can be seen, the definition given is "agreement, conformity." The example sentence given in the definition is "in accordance with a rule" The term therefore has a well known meaning in the art and its use in the claim is not indefinite. Reversal of the rejection is thus respectfully requested.

4. Rejection of claims 15, 17 and 20

The Examiner rejects claims 15, 17 and 20 for use of the term "capable of expressing." In particular, it is stated that it is unclear if the plant actually expresses the trait. Appellants note that the term "capable" is well know in the art and thus the claim is fully definite. Claim breadth is not indefiniteness. One of skill in the art would understand whether a corn plant is capable of expressing all of the traits of corn plant I015036 because Appellants have provided the corn plant I015036 by way of a biological deposit with the ATCC. One of skill in the art would therefore readily ascertain whether a plant is capable of expressing all of the traits of I015036 based on direct comparisons. Because the standard is readily ascertainable, the use of the limitation in the claims is not indefinite. Reversal of the rejection is therefore respectfully requested.

5. Rejection of claim 18

The Examiner rejects claim 18 taking the position that "derived from" in the recitation "wherein the regenerable cells comprise cells derived from embryos, immature embryos, meristematic cells, immature tassels, microspores, pollen, leaves, anthers, roots, root tips, silk, flowers, kernels, ears, cobs, husks, or stalks" is indefinite.

Appellant note that the term is fully definite based on the well known meaning of "derived." For example, the relevant dictionary definitions for "derived" from the on-line version of the Merriam-Webster™ dictionary are "**1 a :** to take, receive, or obtain especially from a specified source **b :** to obtain (a chemical substance) actually or theoretically from a parent substance." **Exhibit D**. Both definitions indicate that the regenerable cells are obtained from the relevant compositions. Given the well known meaning, there is nothing indefinite in the recitation of the term in the claims. Reversal of the rejection is therefore respectfully requested.

6. Rejection of claim 22

The Examiner rejects claim 22 as allegedly being improperly dependent on claim 21 for not further limiting this. This is incorrect. Claim 22 specifies that corn plant I015036 is crossed to a second, distinct inbred corn plant, whereas claim 21 is not so limited. In claim 21, I015036 may be crossed to a second plant that is not distinct from I015036 and is not inbred. In claim 22, I015036 must be crossed to a second, distinct inbred corn plant. Claim 22 therefore further narrows claim 21 and is in proper dependent form. The rejection of the Examiner is thus not understood. Reversal of the rejection is therefore respectfully requested.

7. Rejection of claim 28

The Examiner states that claim 28 is indefinite because the article "a" in the recitation "wherein the single locus was stably inserted into a corn genome" renders the claim indefinite regarding whether the single locus was inserted into the genome of I015036 or that of a different plant.

The single locus referred to in claim 28 may or may not have been directly inserted into the genome of the claimed plant. This does not render the claim indefinite, however. The single locus may have been inserted into a parent I015036 plant selfed to produce the claimed plant. The claim specifies that the single locus was stably inserted into a corn genome. Loci that are stably inserted into a corn genome are also stably inherited. Thus the single locus need not have been inserted into the genome of corn variety I015036. As such, the metes and bounds of the claim are clear and the claim is not indefinite. Reversal of the rejection is therefore respectfully requested.

8. Rejection of claim 30

The Examiner rejects claim 30 for use of the terms "yield enhancement," "improved nutritional quality," and "enhanced yield stability." However, the terms are all understood by

those of skill in the art and there is no prohibition upon the use of relative terms. The terms must be read in the context of the claim in which they are found. The subject claim recites a single locus that confers the traits of yield enhancement, improved nutritional quality, and enhanced yield stability. It is thus understood the enhancement of yield or yield stability and improved nutritional quality is relative to a plant lacking the single locus. The metes and bounds of the claim are thus fully understood by one of skill in the art and the use of the terms is not indefinite. Reversal of the rejection is therefore respectfully requested.

B. The Written Description Rejection Has Been Improperly Maintained

1. The Examiner misapplies the written description requirement

As an initial matter, it is noted that the Examiner misapplies the written description requirement. Specifically, the Examiner is requiring Appellants to show a ***structure and a function*** for the claimed invention. For example, the Examiner on page 9 of the Third Action rejects Appellants' evidence that all of the claimed hybrids have the genetic complement of corn variety I015036 because "the functions of the claimed hybrid plants have not been correlated to the half of their genetic material originating from the deposited I015036 seed." Similar arguments are made regarding single locus conversions. Appellants respectfully submit that this position originates in a misunderstanding of the *Enzo* holding and related holdings regarding the written description requirement.

It has never been a requirement of the first paragraph of §112 that an Applicants correlate structures adequately describing an invention with a function. Indeed, the issue dealt with in *Enzo* was whether a functional description alone could support written description in the absence of structural data. *See Enzo Biochem, Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 1324 (Fed. Cir.

2002). Nowhere does the case indicate that a function is necessary when a structural description has been provided.

Here, Appellants have provided such structural data and have gone further than morphological and physiological traits by describing the claimed plants at the genetic level by way of the proffered seed deposit. A better description could not be made than at the genetic level. Morphological and physiological traits, while helpful, are also subject to environmental variation and require subjective gradations. Genetic testing provides an even better description by going to the source of traits, yielding concrete values.

The law further makes no distinctions regarding the manner in which applicants choose to describe their invention. Rather, an applicant must merely describe the claimed subject matter by "whatever characteristics sufficiently distinguish it." *Amgen v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206 (Fed. Cir. 1991). Here, Appellants have described the entire genetic complement of parent plant I015036 that will be comprised in the claimed hybrid plants by way of a biological deposit. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 1330 (Fed. Cir. 2002). The claimed subject matter has therefore been fully described and reversal of the rejection is respectfully requested.

2. Populations of seeds and plants grown therefrom recited in claims 2, 3 and 14 have been fully described

The Examiner rejects claims 2 and 3 as allegedly not having been adequately described.

Claim 2 reads as follows:

> 2. A population of seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

Claim 3 reads as follows:

> 3. The population of seed of claim 2, further defined as an essentially homogeneous population of seed.

Claim 2 finds literal support in the deposit of seed made with the ATCC and thus the rejection is not understood. Specifically, Appellants have deposited a population of 2500 seeds with the ATCC, fully supporting the claim. *See Enzo* at 1330 (Fed. Cir. 2002) (holding that a biological deposit constitutes a written description of the deposited material under 35 U.S.C. §112, first paragraph). With regard to claim 3, as set forth above, this is a proper dependent claim that further defines claim 2. This is because a population, which is a group of individuals sharing a common characteristic, need not be substantially homogeneous. This also has literal support in the recited seed deposit as claim 2, as an essentially homogeneous population may be prepared, for example, by selecting seeds from the population of claim 2 having shared selected characteristics, for example, seed weight, seed size or seed shape. Claim 14, directed to an essentially homogeneous population of corn plants produced by growing the seed of the corn variety I015036, has similarly been described. As indicated above, "essentially homogeneous" properly modifies "population." The examiner has not alleged that populations of corn plants produced by growing the seed of the corn variety I015036 have not been described. Reversal of the rejections is thus respectfully requested.

3. Hybrid plants recited in claims 22-24 have been fully described

a. The claimed hybrid plants share the genetic complement of corn variety I015036

Rejected claims 22-24 are directed to hybrid plants and seeds produced with corn plant I015036 as one parent. Appellants have fully described this claimed subject matter in compliance with the written description requirement of 35 U.S.C. §112, first paragraph. As set forth in the breeding history at page 26 of the specification, corn plant I015036 is an inbred corn plant. All of the claimed hybrid plants having I015036 as a parent will therefore contain a copy of the same genome as corn plant I015036. That is, because I015036 is an inbred corn plant,

hybrid corn plants derived therefrom will have as half of their genetic material the same genetic contribution of corn plant I015036, save the possibility of the rare spontaneous mutation or undetected segregating locus. This entire genetic contribution of corn plant I015036 is described in the specification by way of the deposit of seed of corn plant I015036 with the ATCC. *See Id.* at 1330 (holding that a biological deposit constitutes a written description of the deposited material under 35 U.S.C. §112, first paragraph). This represents a description of concrete and identifiable structural characteristics defining the claimed hybrid plants and distinguishing them from other plants in full compliance with the written description requirement.

The Federal Circuit has noted that such shared identifiable structural features are important to the written description requirement. *The Regents of The University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997) (noting that a name alone does not satisfy the written description requirement where "it does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, *as one can do with a fully described genus, visualize or recognize the identity of the members of the genus*" (emphasis added)). Here, all of the members of the claimed genus of hybrids having I015036 as one parent share the structural feature of having the genetic complement of I015036. One of skill in the art could thus readily identify the members of the genus. The written description requirement has, therefore, been fully complied with.

b. The shared characteristics of the claimed hybrid plants are readily identified and described in the specification

As set forth above, the claimed F1 hybrid plants having I015036 as one parent will share the same genetic complement received from I015036. This is readily identifiable by genetic marker analysis, as shown in Tables 6 and 8 of the specification. There shown is the SSR

genetic marker profile of corn variety I015036, as well as an the exemplary hybrid plant designated 8012681 that was made using I015036 as one parent. As can be seen, hybrid corn plant 8012681 has the SSR genetic marker profile of I015036, and also includes the genetic markers from the second parent plant used to make the hybrid. The same will be true for any other hybrid plant having I015036 as one parent, save for an occasional difference at a locus due to spontaneous genetic rearrangements, which occur at statistically insignificant frequencies in essentially all organisms.

The second plant that is used to make the claimed hybrid plants is irrelevant, as a hybrid will be produced any time corn plant I015036 is crossed with a second plant. That is, any second plant capable of reproduction may be used to make the hybrid plant. Appellants cannot therefore be said to lack written description for the second genetic complement. This is particularly so given that hundreds or even thousands of different inbred corn lines were well known to those of skill in the art prior to the filing of the instant application, each of which could be crossed to make a hybrid plant within the scope of the claims. This is evidenced by a review of the U.S.P.T.O. patent data website, which reveals utility patents issued on hundreds of different corn varieties. Any one of these corn plants, or the many hundreds or thousands of other maize plants that were known at the time the application was filed, could be used to produce an F1 hybrid plant having corn variety I015036 as one parent, and each of these would share the genetic complement of I015036.

Written description is reviewed from the perspective of one of skill in the art at the time the application is filed. *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 863 (Fed. Cir. 1993). The specification need not disclose what is well-known to those skilled in the art and preferably omits what is well-known and already available to the public. *In re Buchner*, 929 F.2d 660, 661

(Fed. Cir. 1991). As *any* second plant may be used to produce the claimed hybrid plants and such plants were well known to those of skill in the art, Appellants cannot be said to have not been in possession of the second parent plant. The claimed hybrid corn plants have therefore been described in compliance with 35 U.S.C. §112, first paragraph.

The Examiner attempts to downplay the significance of the genetic marker data given in the specification by stating that some loci may be shared by other plants, that primer sequences are not described or that certain isozyme markers are not informative. However, no effort has been made to show that any substantial number of marker loci actually *are* shared by other plants. Further, Appellants do not claim such "other" plants, so this is irrelevant to written description. No basis has been provided to conclude that the claimed hybrid plants are not distinct and clearly identifiable by the genetic marker profile that has been set forth. Regarding the availability of genetic markers, the service that was used to detect SSR markers is commercially available to the public. Further, SSR and any of the other genetic marker systems that are well known to those of skill in the art may potentially be used, as is described on pages 60-61 of the specification. Regardless of whether SSR markers are used, the shared genetic complement of the claimed hybrid plants having corn variety I015036 as one parent distinguishes them. As the entire genome of corn variety I015036 has been described, at least, by way of the seed deposit that has been made, any polymorphic locus could be used including or in addition to the more than 60 SSR markers shown in Tables 6 and 8.

c. Appellants fully describe an exemplary hybrid made using inbred I015036

Further description of claimed hybrid plants is also provided in the specification by way of a detailed description of hybrid 8012681, which was produced with I015036 as one inbred parent. This plant is representative of hybrids produced using I015036 as one parent, each of

which comprise the genetic complement of the parent corn plant as set forth above. Table 4 of the specification gives the performance characteristics for 8012681 and provides comparisons against other hybrid varieties. In Table 5, the morphological traits of 8012681 are given. The SSR and isozyme marker profiles for hybrid 8012681 are given in Tables 8 and 9, respectively. This information, combined with the descriptions of I015036 in the specification and the shared structure among hybrids having corn plant I015036 as a parent, is more than adequate to describe the claimed subject matter.

4. Single locus converted plants of corn variety I015036 have been fully described

The examiner has maintained the rejection of claims 27-30, which are directed to a single locus conversion of corn plant I015036. In particular, the examiner has alleged that: (1) the characteristics of the claimed single locus converted plant are unpredictable and/or not described, (2) the claims encompass genes that have yet to be discovered, and (3) the sequences and/or sources for the numerous examples of single locus traits disclosed in the application have not been described.

a. The claimed subject matter is not unpredictable

With regard to the first issue it is noted that a "single locus converted (conversion) plant" is defined at page 23, lines 6-12 of the specification as follows:

> [p]lants which are developed by a plant breeding technique called backcrossing wherein essentially all of the desired morphological and physiological characteristics of an inbred are recovered in addition to the characteristics conferred by the single locus transferred into the inbred *via* the backcrossing technique. A single locus may comprise one gene, or in the case of transgenic plants, one or more transgenes integrated into the host genome at a single site (locus).

Therefore, the claimed plants comprising a single locus conversion possess "essentially all of the desired morphological and physiological characteristics of [the single gene converted plant]".

The Examiner's comments with regard to various allegedly unknown characteristics are thus outside the scope of the claims. With regard to the claimed subject matter, Appellants have more than adequately described such a plant that comprises essentially all of the desired morphological and physiological characteristics of corn plant I015036 by way of the description and deposit of I015036 alone, not to mention other description provided. To hold otherwise would be to limit Appellants to that subject matter described *ipsis verbis* in the specification. This position is expressly contradictory to Federal Circuit precedent. *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (stating that the written description requirement does not require an applicant to "describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (citations omitted)) .

b. The examiner has applied the written description requirement with respect to unclaimed subject matter

With respect to the Examiner's allegation that the claims encompass genes that have yet to be discovered, it is noted that Appellants ***do not claim undiscovered genes***. The claimed subject matter is the corn variety I015036 comprising a single locus conversion. Any single locus conversion may be introduced into corn variety I015036 to produce the claimed single locus conversion. The fact that a given gene could be isolated in the future and introduced as a single locus conversion is irrelevant – the new gene is not claimed *per se*, a single locus conversion of corn plant I015036 is claimed. Under the reasoning of the examiner, essentially any claim could be read to encompass subject matter yet to be invented and therefore not be described. A claim to a corn plant transformed with a *Bacillus thuringiensis* gene would be invalid because it would encompass corn varieties yet to be discovered. A claim to a given gene operably linked to a regulatory element would be invalid because as yet to be isolated regulatory

elements would be encompassed. Nearly any biotechnological invention could be viewed this way applying the examiner's reasoning. However, it is not any given single locus that is claimed, it is a corn plant of corn variety I015036 which comprises a single locus that has been claimed.

c. Appellants have disclosed numerous single locus traits and such traits were well known to those of skill in the art when the application was filed

The Examiner alleges that the traits recited in the application and referred to in Appellants' previous response to office action have not been shown to have been known in the art. However, the Examiner has ignored Appellants' previous evidence submitted in the prior response to office action and also recited in the specification showing numerous single locus traits that were described.

Among just the examples in the specification recited with a publication reference or patent number are the following (see specification at pages 29-34): genes conferring male sterility (U.S. Patent No. 3,861,709, U.S. Patent No. 3,710,511, U.S. Patent No. 4,654,465, U.S. Patent No 5,625,132, and U.S. Patent No. 4,727,219, incorporated by reference); male-sterility restorer genes (U.S. Patent Nos. 5,530,191, 5,689,041, 5,741,684, and 5,684,242, incorporated by reference); a herbicide resistant EPSPS mutation termed *aroA* (U.S. Patent 4,535,060); and a mutant maize gene encoding a protein with amino acid changes at residues 102 and 106 (PCT Publication WO 97/04103).

The single locus traits are also described by way of PCT Application Publ. WO 95/06128, which was specifically incorporated by reference at page 31 of the specification. Examples of some of the single locus traits described in WO 95/06128, including any associated phenotype and publication reference given, are as follows:

the uidA gene from *E. Coli* encoding β-glucuronidase (GUS) (cells expressing *uidA* produce a blue color when given the appropriate substrate, Jefferson, R.A. 1987. *Plant Mol. Biol. Rep* 5: 387-405); the *bar* gene from *Streptomyces hygroscopicus* encoding phosphinothricin acetyltransferase (PAT) (cells expressing PAT are resistant to the herbicide Basta, White, J., Chang, S.-Y.P., Bibb, M.J., and Bibb, M.J. 1990. *Nucl. Ac. Research* 18: 1062); the *lux* gene from firefly encoding luciferase (cells expressing *lux* emit light under appropriate assay conditions, deWet, J.R., Wood, K.V., DeLuca, M., Helinski, D.R., Subramani, S. 1987. *Mol. Cell. Biol.* 7: 725-737); the *dhfr* gene from mouse encoding dihydrofolate reductase (DHFR) (cells expressing *dhfr* are resistant to methotrexate; Eichholtz, D.A., Rogers, S.G., Horsch, R.B., Klee, H.J., Hayford, M., Hoffman, N.L., Bradford, S.B., Fink, C., Flick, J., O'Connell, K.M., Frayley, R.T. 1987. *Somatic Cell Mol. Genet.* 13: 67-76); the *neo* gene from *E.Coli* encoding aminoglycoside phosphotransferase (APH) (cells expressing *neo* are resistant to the aminoglycoside antibiotics; Beck, E., Ludwig, G., Auerswald, E.A., Reiss, B., Schaller, H. 1982. *Gene* 19: 327-336); the *amp* gene from *E. Coli* encoding β-lactamase (cells expressing β-lactamase produce a chromogenic compound when given the appropriate substrate; Sutcliffe, J.G. 1978. *Proc. Nat. Acad. Sci.* USA 75: 3737-3741); the *xylE* gene from *Ps. putida* encoding catechol dihydroxygenase (cells expressing *xylE* produce a chromogenic compound when given the appropriate substrate; Zukowsky *et al.* 1983. *Proc. Nat. Acad. Sci.* USA 80: 1101-1105); the R,C1 and B genes from maize encode proteins that regulate anthocyanin biosynthesis in maize (Goff, S., Klein, T., Ruth, B., Fromm, M., Cone, K., Radicella, J., Chandler, V. 1990. *EMBO J.:* 2517-2522); the ALS gene from *Zea mays* encoding acetolactate synthase and mutated to confer resistance to sulfonylurea herbicides (cells expressing ALS are resistant to the herbicide; Gleen. Yang, L.Y., Gross, P.R., Chen, C.H., Lissis, M. 1992. *Plant Molecular Biology* 18: 1185-1187); the proteinase inhibitor II gene from potato and tomato (plants expressing the proteinase inhibitor II gene show increased resistance to insects; potato - Graham, J.S., Hall, G., Pearce, G., Ryan, C.A. 1986 *Mol. Cell. Biol.* 2: 1044-1051; tomato - Pearce, G., Strydom, D., Johnson, S., Ryan, C.A. 1991. *Science* 253: 895-898); the *Bt* gene from *Bacillus thuringensis* berliner 1715 encoding a protein that is toxic to insects (this gene is the coding sequence of *Bt* 884 modified in two regions for improved expression in plants; Vaeck, M., Reynaerts, A., Hofte, H., Jansens, S., DeBeuckeleer, M., Dean, C., Aeabeau, M., Van Montagu, M., and Leemans, J. 1987. *Nature* 328: 33-37); the *bxn* gene from *Klebsiella ozaeneae* encoding a nitrilase enzyme specific for the herbicide bromoxynil (cells expressing this gene are resistant to the herbicide bromoxynil; Stalker, D.m., McBride, K.E., and Malyj, L. *Science* 242: 419-422, 1988); the WGA-A gene encoding wheat germ agglutinin (expression of the WGA-A gene confers resistance to insects; Smith, J.J., Raikhel, N.V. 1989. *Plant Mol. Biology* 13: 601-603); the *dapA* gene from *E. coli* encoding dihydrodipicolinate synthase (expression of this gene in plant cells produces increased levels of free lysine; Richaud, F., Richaud, C., Rafet, P. and Patte, J.C. 1986. *J. Bacteriol.* 166: 297-300); the *Z10* gene encoding a 10kd zein storage protein from maize (expression of this gene in cells alters the quantities of 10kD Zein in the cells; Kirihara, J.A., Hunsperger, J.P., Mahoney, W.C., and Messing, J. 1988. *Mol. Gen. Genet.* 211: 477-484); the Bt gene cloned from *Bacillus thuringensis* Kurstaki encoding a protein that is toxic to insects (the gene is the coding sequence of the cry IA(c) gene modified for improved expression in plants - plants expressing this gene are resistant to insects; Höfte, H. and Whiteley, H.R., 1989. *Microbiological Reviews.* 53: 242-255); the ALS gene from *Arabidopsis thaliana* encoding a sulfonylurea herbicide resistant acetolactate synthase enzyme (cells expressing this gene are resistant to the herbicide Gleen. Haughn, G.W., Smith, J., Mazur, B., and Somerville,

C. 1988. *Mol. Gen. Genet.* 211: 266-271); the *dehl* gene from *Pseudomonas putida* encoding a dehalogenase enzyme (cells expressing this gene are resistant to the herbicide Dalapon; Buchanan-Wollaston, V., Snape, A., and Cannon, F. 1992. *Plant Cell Reports* 11: 627-631); the hygromycin phosphotransferase II gene from *E. coli* (expression of this gene in cells produces resistance to the antibiotic hygromycin. Waldron, C., Murphy, E.B., Roberts, J.L., Gustafson, G.D., Armour, S.L., and Malcolm, S.K. *Plant Molecular Biology* 5: 103-108, 1985); the *mtlD* gene cloned from *E. coli* (the gene encodes the enzyme mannitol-1-phosphate dehydrogenase; Lee and Saier, 1983. *J. of Bacteriol.* 153:685); the HVA-1 gene encoding a Late Embryogenesis Abundant (LEA) protein (the gene was isolated from barley; Dure, L., Crouch, M., Harada, J., Ho, T.-H. D. Mundy, J., Quatrano, R, Thomas, T, and Sung, R., *Plant Molecular Biology* 12: 475-486.

The foregoing represent just some of the single locus coding sequences that were known as of March 2, 1995; ***nearly six years prior*** to the filing of the instant application. More than 25 regulatory elements were also described therein, as were numerous transformation vectors comprising combinations of these elements. Appellants could describe many more examples of single locus traits that were well known as of the filing date, and would be glad to do so should the Board find it useful. It thus goes without saying that single locus traits were more than well known to those of skill in the art as of the filing date and were fully described in the specification.

Techniques for the introduction of single locus traits by genetic transformation were further well known to those of skill in the art. Some of the transformation methods for corn that were well known as of the filing date and cited in the specification include the following: electroporation (U.S. Patent No. 5,384,253), microprojectile bombardment (U.S. Patent No. 5,550,318; U.S. Patent No. 5,736,369, U.S. Patent No. 5,538,880; and PCT Publication WO 95/06128), *Agrobacterium*-mediated transformation (U.S. Patent No. 5,591,616 and E.P. Publication EP672752), direct DNA uptake transformation of protoplasts (Omirulleh *et al.*, 1993) and silicon carbide fiber-mediated transformation (U.S. Patent No. 5,302,532 and U.S. Patent No. 5,464,765). Introduction of such traits by conventional breeding was also known. In

fact, this is one of the most fundamental procedures in agricultural science, and it has not been alleged that this has not been described.

Appellants have therefore shown possession of the claimed single locus conversions. Both large numbers of single locus traits and the associated phenotypes were well known to those of skill in the art. The specification itself defines a single locus converted plant as comprising essentially all of the desired morphological and physiological characteristics of the starting non-converted plant, *e.g.*, I015036. Well more than an adequate number of examples have been provided and were known in the art to satisfy written description. The state of the art must be considered in the written description determination. As such, Appellants respectfully request reversal of the rejection.

5. The rejection of claim 31 has been improperly issued and maintained

a. The examiner has failed to adequately support the rejections

Claim 31 is a process claim that involve crossing corn variety I015036 according to the specified steps. Appellants understand that it is the position of the examiner that written description must be provided for each intermediate product in a method claim in the same manner as if the particular product was individually claimed as a composition of matter. That is, Appellants understand that the position taken is that it is not sufficient to describe all of the starting materials for a process and all of the steps carried out on the starting materials, but rather that the structural characteristics of any product made at any intermediate or penultimate step must be described as if claimed as a composition of matter. Appellants submit that this is a misstatement of the law and, more significantly, note that this rejection has not been set forth on the record. No basis in law or fact has been given for maintaining the rejection, as the examiner's arguments appear to be entirely directed to composition of matter claims.

In the Third Office Action, the Examiner stated, without explanation, that the basis for this position was found in the "Revised Interim Guidelines for Examination of Patent Applications Under the 35 U.S.C. Sec. 112, ¶'Written Description' Requirement; Request for Comments, 64 Fed. Reg. 71427, 71428 (1999), comment no. 4. This comment states the following:

> (4) Comment: Six comments were in favor of including process and product-by-process claims in the analysis, whereas one comment was opposed. One comment criticized the Guidelines for failing to acknowledge the ``safe harbor" product-by-process type claim noted in Fiers v. Revel, 984 F.2d 1164, 25 USPQ2d 1601 (Fed. Cir. 1993), and Amgen Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991). One comment observed that process and product-by- process claims tend not to implicate many written description issues, and it may be useful to point out possible enablement deficiencies for such claims. Two comments suggested that the Guidelines should distinguish between claims to processes whose patentability depends on the compositions used in them, as opposed to those where patentability rests in the steps of the process itself. Response: The suggestion to address process and product-by-process claims has been adopted. Furthermore, the training materials will analyze claims wherein the patentability depends on the compositions used therein, as well as those where the patentability rests in the process steps themselves. Enablement issues raised by process and product-by-process claims are outside the scope of these Revised Interim Guidelines.

Appellants find no support in this comment for the position taken. All that the note says is that the Written description Guidelines will address process and product-by-process claims. Indeed it the comment appears to indicate that composition and methods claims will be treated differently, as immediately prior to the sentence indicating that the suggestion will be adopted it is stated that a request was made to "distinguish between claims to processes whose patentability depends on the compositions used in them, as opposed to those where patentability rests in the steps of the process itself."

Comments to the Interim Written Description Guidelines do not constitute the type of support required to maintain a rejection, particularly when in the face of contradicting caselaw submitted by Appellants. Findings of fact and conclusions of law by the U.S. Patent and

Trademark Office must be made in accordance with the Administrative Procedure Act ("APA"). 5 U.S.C. § 706(A), (E), 1994; *see also In re Zurko,* 59 USPQ 2d 1693 (Fed. Cir. 2001). In particular, the Federal Circuit has held that findings by the Board of Patent Appeals and Interferences must be supported by "substantial evidence" within the record pursuant to the APA. *See In re Gartside*, 203 F.3d 1305, 1314-15 (Fed. Cir. 2000). Thus, an Examiner's position on Appeal must be supported by "substantial evidence" within the record in order to be upheld by the Board of Patent Appeals and Interferences. The current rejections are unsupported in fact or law. The standards of the APA have therefore not been met and reversal of the rejection is thus respectfully requested.

b. The rejection of claim 31 is improper

The examiner has maintained the rejection of claim 31, although no basis for doing so has been provided. Claim 31 reads as follows:

31. A method of producing an inbred corn plant derived from the corn variety I015036, the method comprising the steps of:

(a) preparing a progeny plant derived from corn variety I015036 by crossing a plant of the corn variety I015036 with a second corn plant, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225;

(b) crossing the progeny plant with itself or a second plant to produce a seed of a progeny plant of a subsequent generation;

(c) growing a progeny plant of a subsequent generation from said seed and crossing the progeny plant of a subsequent generation with itself or a second plant; and

(d) repeating steps (b) and (c) for an addition 3-10 generations to produce an inbred corn plant derived from the corn variety I015036.

As set forth above, it is believed that the rejection is made based on the position that each product produced at any intermediate or penultimate step of the method must be described as if claimed *per se*. It is respectfully submitted that this is a misstatement of the law. What is required to meet the written description requirement is that an Applicant show that he or she was in possession of the ***claimed invention***. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64

(Fed. Cir. 1991). Here, a process is claimed, not a product of a process, and thus the steps of that process must be described, not intermediate or final products of the steps. The starting materials for the process must also be provided, otherwise the process could not be completed. However, the only starting materials required are corn variety I015036, which the examiner does not allege to have not been described, and ***any*** second corn plant. As set forth above, corn plants were well known, and this has also therefore been fully described.

With respect to the steps, these have been fully set forth in the claim. It has not been alleged that any essential steps are absent. All that is required to complete the claimed method is to cross the corn variety I015036 or a product that is produced by any preceding step according to the steps given. All of the starting materials for any step within the method are either (1) corn variety I015036, (2) any second corn plant, or (3) a corn plant that is produced by following a preceding method step. The method has therefore been fully described.

It is also noted that corn breeding is well known to those of skill in the art. Without it, there would not be commercial corn varieties, which are typically sold as hybrids produced by crossing two inbred varieties. This is evidenced by the more than 300 issued patents to inbred maize varieties discussed above, given that inbred plants are not produced without multiple generations of intentional self-fertilization. All of the steps recited in claim 31 are typical of the process used for the production of new corn varieties, save for the point of novelty, corn variety I015036. This is evidenced in the breeding history for the production of corn variety I015036, which is given in the specification. The specification also describes methods and considerations for producing new corn varieties in the review of related art, for example, at pages 2-4 of the application.

In conclusion, all steps of the claimed process have been recited, all starting materials have been fully described, and methods of producing new corn varieties were well known to those of skill in the art. Claim 31 has therefore been fully described in compliance with 35 U.S.C. §112, first paragraph. Reversal of the rejection is thus respectfully requested.

6. The marker profiles in claims 6 and 11 have been described

The Examiner rejects claims 6 and 11 because it is stated that written description for the markers named in Tables 6 and 7 has not been provided. Initially, it is noted that no basis for this allegation has been provided. The profiles are recited in the tables and the claims claim nothing more than what is provided in Tables 6 and 7. Literal support is therefore found in the specification. The conclusory statement is nonetheless made, without support, that written description is lacking. This rejection is directly in contradiction to the standards of the APA and general tenet that the burden is on the Office to show a lack of written description.

With regard to the markers themselves, the SSR markers were from Celera AgGen, Inc., which provides a commercially available service for genotyping of maize varieties. This is indicated in the specification. Nothing is therefore indefinite about the recitation of the marker phenotypes. With regard to the isozymes, the markers are well known and isozyme analysis in general very well known having been used for decades. The claimed subject matter has therefore been fully described.

In view of the foregoing, reversal of the rejection is respectfully requested.

C. <u>The Enablement Rejection of Claims 27-30 Is Improper</u>

The Examiner rejects claims 27-30 under 35 U.S.C. §112, first paragraph as allegedly not enabled. The rejected claims are directed to corn plants of the claimed variety comprising a single locus conversion. The rejected claims are directed to corn plants of variety I015036

comprising a single locus conversion. In an attempt to support the rejection, the Examiner cites several references alleged to show the difficulty of making male sterile or single locus converted plants. However, no basis has been given to show that these references have any relevance to *corn* plants. Hunsperger deals with petunias; Kraft with sugar beets and Eshed with Tomatoes. No showing has been made that the references apply to corn plants absent personal opinion. The relevance of the references to the claimed invention has therefore not been established as is specifically required to establish a *prima facie* case of non-enablement.

The Examiner has further disregarded Appellants example of a conversion that has been made with a proprietary corn variety by stating that information has been left out, such as the number of crosses that were performed at each step. This is incorrect. The breeding history of the conversion that was made is given. In the breeding history, seven backcrosses are described. No steps are left out and no basis has been provided to demonstrate why this example does not demonstrate enablement for the instant variety.

With regard to the rejection of claim 28 for reciting that the single locus was stably inserted in ***a*** corn genome, nothing is non-enabling because stably inserted transgenes are passed on by Mendelian inheritance. It is therefore irrelevant whether the single locus was inserted into the same plant in claim 28 or any progenitor of that plant that then passed the gene on.

The comment about lack of enablement for any different type of transgene evinces a serious misunderstanding of the enablement requirement and confuses this with written description. The ability to introduce a given transgene is not dependent on the type of transgene inserted. Further, the effect of expression is irrelevant to enablement. The simple fact is that it was routine in the art, as evidenced by the literally dozens of references cited in the specification,

to introduce any given transgene in a corn plant at the time the application was filed and, if desired, to transfer this into any other plant by routine plant breeding techniques that have been used for many decades. Therefore one of skill in the art could readily introduce any given single locus into a corn genome regardless of what this is. The Examiner has provided no reasonable basis to conclude otherwise.

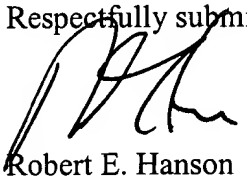
It appears that the Examiner has improperly placed the burden to show enablement on Appellants. The indication that the references concerning petunias, sugar beets and tomatoes apply to corn and the dismissal of Appellants traversal is made without any support. At the same time, the Examiner attempts to require Appellants to show why this is not true. Appellants respectfully note that it is the ***Office*** the bears the burden of supporting its rejections. Findings of fact and conclusions of law by the U.S. Patent and Trademark Office must be made in accordance with the Administrative Procedure Act ("APA"). 5 U.S.C. § 706(A), (E), 1994; *see also In re Zurko,* 59 USPQ 2d 1693 (Fed. Cir. 2001). In particular, the Federal Circuit has held that findings by the Board of Patent Appeals and Interferences must be supported by "substantial evidence" within the record pursuant to the APA. *See In re Gartside*, 203 F.3d 1305, 1314-15 (Fed. Cir. 2000). Thus, an Examiner's position on Appeal must be supported by "substantial evidence" within the record in order to be upheld by the Board of Patent Appeals and Interferences. The current rejections are unsupported as required by the APA and contrary to the evidence submitted by Appellants.

In view of the foregoing reversal of the rejection is respectfully requested.

X. CONCLUSION

It is respectfully submitted, in light of the above, none of the pending claims are properly rejected. Therefore, Appellants request that the Board reverse the pending grounds for rejection.

Respectfully submitted,



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APPENDIX 1: CLAIMS ON APPEAL

2. A population of seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

3. The population of seed of claim 2, further defined as an essentially homogeneous population of seed.

6. The corn plant of claim 5, having:

(a) an SSR profile in accordance with the profile shown in Table 6; or

(b) an isozyme typing profile in accordance with the profile shown in Table 7.

11. The plant part of claim 10, wherein said cell is further defined as having :

(a) an SSR profile in accordance with the profile shown in Table 6; or

(b) an isozyme typing profile in accordance with the profile shown in Table 7.

14. An essentially homogeneous population of corn plants produced by growing the seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

15. A corn plant capable of expressing all the physiological and morphological characteristics of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

16. The corn plant of claim 15, further comprising a nuclear or cytoplasmically-inherited gene conferring male sterility.

17. A tissue culture of regenerable cells of a plant of corn variety I015036, wherein the tissue is capable of regenerating plants capable of expressing all the physiological and morphological characteristics of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

18. The tissue culture of claim 17, wherein the regenerable cells comprise cells derived from embryos, immature embryos, meristematic cells, immature tassels, microspores, pollen, leaves, anthers, roots, root tips, silk, flowers, kernels, ears, cobs, husks, or stalks.

19. The tissue culture of claim 18, wherein the regenerable cells are in the form of protoplasts or callus cells.

20. A corn plant regenerated from the tissue culture of claim 17, wherein the corn plant is capable of expressing all of the physiological and morphological characteristics of the corn variety designated I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

22. The process of claim 21, further defined as a process of producing F1 hybrid corn seed, comprising crossing a first inbred corn plant with a second, distinct inbred corn plant, wherein the first or second inbred corn plant is a plant of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

23. The process of claim 22, wherein crossing comprises the steps of:

(a) planting the seeds of first and second inbred corn plants;

(b) cultivating the seeds of said first and second inbred corn plants into plants that bear flowers;

(c) preventing self pollination of at least one of the first or second inbred corn plant;

(d) allowing cross-pollination to occur between the first and second inbred corn plants; and

(e) harvesting seeds on at least one of the first or second inbred corn plants, said seeds resulting from said cross-pollination.

24. Hybrid corn seed produced by the process of claim 23.

25. A hybrid corn plant produced by growing a seed produced by the process of claim 23.

27. The corn plant of claim 5, further defined as having a genome comprising a single locus conversion.

28. The corn plant of claim 27, wherein the single locus was stably inserted into a corn genome by transformation.

29. The corn plant of claim 27, wherein the locus is selected from the group consisting of a dominant allele and a recessive allele.

30. The corn plant of claim 27, wherein the locus confers a trait selected from the group consisting of herbicide tolerance; insect resistance; resistance to bacterial, fungal, nematode or viral disease; yield enhancement; waxy starch; improved nutritional quality; enhanced yield stability; male sterility and restoration of male fertility.

31. A method of producing an inbred corn plant derived from the corn variety I015036, the method comprising the steps of:

(a) preparing a progeny plant derived from corn variety I015036 by crossing a plant of the corn variety I015036 with a second corn plant, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225;

(b) crossing the progeny plant with itself or a second plant to produce a seed of a progeny plant of a subsequent generation;

(c) growing a progeny plant of a subsequent generation from said seed and crossing the progeny plant of a subsequent generation with itself or a second plant; and

(d) repeating steps (b) and (c) for an addition 3-10 generations to produce an inbred corn plant derived from the corn variety I015036.

APPENDIX 2: PENDING CLAIMS

1. A seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

2. A population of seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

3. The population of seed of claim 2, further defined as an essentially homogeneous population of seed.

5. A corn plant produced by growing a seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

6. The corn plant of claim 5, having:
   (a) an SSR profile in accordance with the profile shown in Table 6; or
   (b) an isozyme typing profile in accordance with the profile shown in Table 7.

7. A plant part of the corn plant of claim 5.

8. The plant part of claim 7, further defined as pollen.

9. The plant part of claim 7, further defined as an ovule.

10. The plant part of claim 7, further defined as a cell.

11. The plant part of claim 10, wherein said cell is further defined as having :
   (a) an SSR profile in accordance with the profile shown in Table 6; or
   (b) an isozyme typing profile in accordance with the profile shown in Table 7.

12. A seed comprising the cell of claim 10.

13. A tissue culture comprising the cell of claim 10.

14. An essentially homogeneous population of corn plants produced by growing the seed of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

15. A corn plant capable of expressing all the physiological and morphological characteristics of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

16. The corn plant of claim 15, further comprising a nuclear or cytoplasmically-inherited gene conferring male sterility.

17. A tissue culture of regenerable cells of a plant of corn variety I015036, wherein the tissue is capable of regenerating plants capable of expressing all the physiological and morphological characteristics of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

18. The tissue culture of claim 17, wherein the regenerable cells comprise cells derived from embryos, immature embryos, meristematic cells, immature tassels, microspores, pollen, leaves, anthers, roots, root tips, silk, flowers, kernels, ears, cobs, husks, or stalks.

19. The tissue culture of claim 18, wherein the regenerable cells are in the form of protoplasts or callus cells.

20. A corn plant regenerated from the tissue culture of claim 17, wherein the corn plant is capable of expressing all of the physiological and morphological characteristics of the corn variety designated I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

21. A process of producing corn seed, comprising crossing a first parent corn plant with a second parent corn plant, wherein one or both of the first or the second parent corn plant is a plant of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225, wherein seed is allowed to form.

22. The process of claim 21, further defined as a process of producing F1 hybrid corn seed, comprising crossing a first inbred corn plant with a second, distinct inbred corn plant, wherein the first or second inbred corn plant is a plant of the corn variety I015036, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225.

23. The process of claim 22, wherein crossing comprises the steps of:

(a) planting the seeds of first and second inbred corn plants;

(b) cultivating the seeds of said first and second inbred corn plants into plants that bear flowers;

(c) preventing self pollination of at least one of the first or second inbred corn plant;

(d) allowing cross-pollination to occur between the first and second inbred corn plants; and

(e) harvesting seeds on at least one of the first or second inbred corn plants, said seeds resulting from said cross-pollination.

24. Hybrid corn seed produced by the process of claim 23.

25. A hybrid corn plant produced by growing a seed produced by the process of claim 23.

27. The corn plant of claim 5, further defined as having a genome comprising a single locus conversion.

28. The corn plant of claim 27, wherein the single locus was stably inserted into a corn genome by transformation.

29. The corn plant of claim 27, wherein the locus is selected from the group consisting of a dominant allele and a recessive allele.

30. The corn plant of claim 27, wherein the locus confers a trait selected from the group consisting of herbicide tolerance; insect resistance; resistance to bacterial, fungal, nematode or viral disease; yield enhancement; waxy starch; improved nutritional quality; enhanced yield stability; male sterility and restoration of male fertility.

31. A method of producing an inbred corn plant derived from the corn variety I015036, the method comprising the steps of:

(a) preparing a progeny plant derived from corn variety I015036 by crossing a plant of the corn variety I015036 with a second corn plant, wherein a sample of the seed of the corn variety I015036 was deposited under ATCC Accession No. PTA-3225;

(b) crossing the progeny plant with itself or a second plant to produce a seed of a progeny plant of a subsequent generation;

(c) growing a progeny plant of a subsequent generation from said seed and crossing the progeny plant of a subsequent generation with itself or a second plant; and

(d) repeating steps (b) and (c) for an addition 3-10 generations to produce an inbred corn plant derived from the corn variety I015036.

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Main Entry: **pop·u·la·tion**
Pronunciation: "pä-py&-'lA-sh&n
Function: *noun*
Etymology: Late Latin *population-, populatio,* from Latin *populus*
1 a : the whole number of people or inhabitants in a country or region **b :** the total of individuals occupying an area or making up a whole **c :** the total of particles at a particular energy level -- used especially of atoms in a laser
2 : the act or process of populating
3 a : a body of persons or individuals having a quality or characteristic in common **b** (1) **:** the organisms inhabiting a particular locality (2) **:** a group of interbreeding organisms that represents the level of organization at which speciation begins
4 : a group of individual persons, objects, or items from which samples are taken for statistical measurement
- **pop·u·la·tion·al** /-shn&l, -sh&-n&l/ *adjective*

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Main Entry: **ho·mo·ge·neous**
Pronunciation: `-'jE-nE-&s, -ny&s`
Function: *adjective*
Etymology: Medieval Latin *homogeneus, homogenus,* from Greek *homogenEs,* from *hom-* + *genos* kind -- more at KIN
1 : of the same or a similar kind or nature
2 : of uniform structure or composition throughout <a culturally *homogeneous* neighborhood>
3 : having the property that if each variable is replaced by a constant times that variable the constant can be factored out : having each term of the same degree if all variables are considered <a *homogeneous* equation>
- **ho·mo·ge·neous·ly** *adverb*
- **ho·mo·ge·neous·ness** *noun*

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Main Entry: **ac·cor·dance**
Pronunciation: `&-'kor-d&n(t)s`
Function: *noun*
1 : AGREEMENT, CONFORMITY <in *accordance* with a rule>
2 : the act of granting

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Main Entry: **de·rive**
Pronunciation: `di-'rIv, dE-`
Function: *verb*
Inflected Form(s): **de·rived**; **de·riv·ing**
Etymology: Middle English, from Middle French *deriver,* from Latin *derivare,* literally, to draw off (water), from *de-* + *rivus* stream -- more at RUN
transitive senses
1 a : to take, receive, or obtain especially from a specified source **b :** to obtain (a chemical substance) actually or theoretically from a parent substance
2 : **INFER, DEDUCE**
3 *archaic* **:** **BRING**
4 : to trace the derivation of
intransitive senses **:** to have or take origin **:** come as a derivative
synonym see SPRING
- de·riv·er *noun*

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